Please replace the current Abstract with the following rewritten Abstract of the Disclosure:

~~The invention relates to a fiberoptic current or magnetic field sensor having a plurality of sensor heads (H), and to a corresponding measurement method. The sensor has: a light source (1); N ≥ 2 sensor heads (H); at least one phase modulation unit (PME) having at least one phase modulator (PM); a detector (2); a control and evaluation unit (5). The at least one phase modulation unit (PME) is optically connected to at least one of the sensor heads (H). Linearly polarized lightwaves can be differentially phase modulated in a non-reciprocal fashion by means of the at least one phase modulation unit (PME). N modulation amplitudes $\phi_{0,n}$ and N modulation frequencies ν_n are provided for the non-reciprocal differential phase modulations, the modulation frequencies ν_n and two prescribable positive whole numbers p, q with $p \neq q$ being selected in such a way that it holds for all positive whole numbers z and for all whole numbers n, m with $n \neq m$ and $1 \leq n,m \leq N$ that:~~

~~$p \cdot \nu_n \neq z \cdot \nu_m$ and~~

~~$q \cdot \nu_n \neq z \cdot \nu_m$.~~

~~The modulation amplitudes $\phi_{0,n}$ and the modulation frequencies ν_n are selected as a function of modulation-relevant optical path lengths ℓ_n. An improved signal-to-noise ratio can be achieved.~~

~~(Figure 4)~~

The invention relates to a fiberoptic current or magnetic field sensor having a plurality of sensor heads, and to a corresponding measurement method. The sensor has a light source; N ≥ 2 sensor heads; at least one phase modulation unit; a detector; a control and evaluation unit. The at least one phase modulation unit is connected to at least one of the sensor heads. Lightwaves can be differentially phase-modulated in a non-reciprocal fashion by means of the at least one phase modulation unit. Modulation amplitudes $\phi_{0,n}$ and modulation frequencies ν_n are selected as a function of modulation-relevant optical path lengths ℓ_n.